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Dr. Wm. H. Ashmead.

William Harris Ashmead died in Washington, D. C., October 17th, aged fifty-three years. He was descended from an old Philadelphia family and was born in that city September 19, 1855. His father was Captain Albert S. Ashmead and his mother Elizabeth (Graham). Educated in private and public schools, he received the degree of A. M. from the Florida Agricultural College in 1901, and the honorary degree of D. Sc. from the Western University of Pennsylvania the same year. While in Philadelphia he was with the large publishing house of J. B. Lippincott & Company, which he left in 1876 and with his brother established a publishing house in Jacksonville, Florida. They specialized in agricultural books and published an agricultural weekly journal and a daily paper. Dr. Ashmead edited the scientific department of the weekly, devoting himself chiefly to the investigation of injurious insects. His excellent work attracted attention, and in 1887 he was made a special field entomologist of the United States Department of Agriculture. From this time his career as an entomologist was rapid and he occupied the following positions: Entomologist, Florida State Agric. College (1888), Lake City, Florida; Assistant Entomologist and Investigator, U. S. Dept.

Agric. (1889). During the winter of 1890 he went abroad and studied in Berlin. After this he returned to the United States Department of Agriculture, and in July, 1897, was made assistant curator in the department of insects of the United States National Museum, which position he retained until his fatal illness. At various times he occupied important positions and was honored by different societies, having been a Fellow of the American Association for the Advancement of Science; corresponding member American Entomological Society; vice-president Biological Society of Washington; president Cambridge Entomological Society; president Washington Entomological Society; vice-president Washington Academy of Sciences; honorary member Entomological Society of Ontario; vice-president Association Economic Entomologists.

He was a prolific writer, his larger productions being Orange insects; a Bibliographical and Synonymical Catalogue of the Cynipidae; Hymenoptera of the Harriman Alaskan Expedition; Classification of the Ichneumonoidea; Parasitic Hymenoptera of the Island of St. Vincent; Monograph of the Proctotrypidae; Classification of the Chalcid Flies and various classifications of the Hymenoptera published in the *Canadian Entomologist*. In all, he published over two hundred and fifty papers.

Dr. Ashmead had a profound love for entomology, and his great traits were enthusiasm and industry. He was clearly the leader of students of the Hymenoptera in this country during his career. He was thoroughly a gentleman, being courteous, generous and thoughtful of the rights of others. His manuscripts were always carried with him when he visited Philadelphia, as he never lost an opportunity to add to their completeness. As an officer of the United States National Museum he encouraged work among younger men and was quick to recognize ability and secure material to aid their studies. He had the general esteem and love of his co-workers and friends, and will be universally missed and mourned. In 1878 he married Harriet, daughter of Thomas O. Holmes, who, with a daughter, survives him.

Coleoptera of St. Lawrence Co., N. Y.—I.

By C. O. Houghton, Newark, Del.

The present list of beetles embraces only those species that have been taken by the writer in St. Lawrence County, N. Y., at odd times during the past fifteen years. No systematic collecting has been done at any time, and during the past nine years only my summer vacations—in some instances less than a month's time—have been spent in St. Lawrence County, and but very little of this time has been devoted to collecting.

This list is, therefore, very incomplete and some families, which should be represented by many species, are hardly represented at all. However, it is thought that the list, incomplete as it is, may be of some interest to collectors, and of value as giving some data relative to the geographical distribution of our Coleoptera; for so far as the writer is aware, no list of the beetles of this section of New York State has ever been published.*

The collecting has been done principally at Potsdam and in its immediate vicinity, but some excursions have been made into the Adirondack Mountains and their foot-hills at distances from Potsdam varying from ten to fifty miles. The village of Potsdam, which is situated in the township bearing that name, is in latitude 44 deg. 40 min., longitude 74 deg. 58 min. The length of the day at summer solstice is fifteen hours, thirty-nine minutes and fifty-eight seconds. The altitude above sea level is about four hundred feet. Potsdam is a place of about 4500 inhabitants, and is located on the banks of the Racket River. The surrounding country is typical of the farming section of northern New York. It is fairly level, with scattered pieces of woodland and occasional small brooks which

*In the "News" for October, 1902 (p. 247), Dr. A. D. MacGillivray and the writer published a list of Coleoptera taken at Axton, N. Y.; and in the "News" for Feb., 1905 (p. 50), the writer published a list of beetles collected by Dr. MacGillivray and himself on the summit of Mt. Seward, N. Y. These places are in Franklin Co., which adjoins St. Lawrence. None of the species which were collected only at these places are given in the following list.

usually have their sources in springs in the foot-hills of the Adirondack Mountains.

My collecting has been done in the fields and woods and along roadsides and water courses, where some dredging has been done. No collecting with trap lanterns has been attempted, but a few specimens have been taken at various times at light.

The determinations of the species given in this list have been largely made by Mr. Chas. Liebeck, to whom my thanks are due; the writer is responsible for the remainder.

CICINDELIDAE.

Cicindela Linn.
- *6-guttata* Fab.
- *purpurea* Oliv.
- *vulgaris* Say.
- *repanda* Dej.
- *12-guttata* Dej.

CARABIDAE.

Calosoma Web.
- *calidum* Fab.

Elaphrus Fab.
- *ruscarius* Say.

Blethisa Bon.
- *julii* Lec.
- *multipunctata* Linn.

Notiophilus Dum.
- *semistriatus* Say.

Leistus Froh.
- *ferruginosus* Mann.

Dyschirius Bon.
- *globulosus* Say.
- *sphaericollis* Say.

Schizogenius Putz.
- *crenulatus* Lec.

Nomius Lap.
- *pygmaeus* Dej.

Bembidium Lat.
- *ustulatum* Linn.
- *picipes* Kirby.
- *variegatum* Say.
- *versicolor* Lec.
- *mutatum* G. & H.
- *quadrimaculatum* Linn.
- *graciliforme*

Tachys Schaum.
- *nanus* Gyll.
- *incurvus* Say.

Pterostichus Bon.
- *adoxus* Say.
- *honestus* Say.
- *coracinus* Newm.
- *lucublandus* Say.
- *convexicollis* Say.
- *caudicalis* Say.
- *corvinus* Dej.
- *mutus* Say.
- *vitreus* Dej.
- *luczotii* Dej.
- *erythropus* Dej.
- *patruelis* Dej.

Amara Bon.
- *latior* Kirby.
- *angustata* Say.
- *pallipes* Kirby.
- *impunctcollis* Say.
- *cupreolata* Putz.
- *interstitialis* Dej.

Badister Clairv.
- *notatus* Hald.
- *bipustulatus* Fab.

Patrobus Dej.
longicornis Say.
Calathus Bon.
gregarius Say.
Platynus Bon.
sinuatus Dej.
extensicollis Say.
pusillus Lec.
moerens Dej.
atratus Lec.
melanarius Dej.
affinis Kirby.
metallescens Lec.
cupripennis Say.
nutans Say.
placidus Say.
bogemanni Gyll.
quadripunctatus DeG.
rubripes Zimm.
sordens Kirby .
ruficornis Lec.
retractus Lec.
lutulentus Lec.
Lebia Lat.
tricolor Say.
viridis Say.
pumila Dej.
Blechrus Mots.
nigrinus Mann.
Metabletus Sch.—Goeb.
americanus Dej.
Axinopalpus Lec.
biplagiatus Dej.
Callida Dej.
punctata Lec.
Cymindis Lat.
cribrata Lec.
Chlaenius Bon.
sericeus Forst.
pennsylvanicus Say.
Brachylobus Chd.
lithophilus Say.
Agonoderus Dej.
pallipes Fab.
pauperculus Dej.
Harpalus Lat.
erraticus Say.
viridiaeneus Beauv.
Harpalus Lat.
pennsylvanicus DeG.
pleuriticus Kirby.
sp., near pleuriticus
herbivagus Say.
fuliginosus Dej.
conjunctus Say.
Acupalpus Lat.
hydropicus Lec.
Bradycellus Er.
rupestris Say .
Anisodactylus Dej.
harrisii Lec.
nigrita Dej.
baltimorensis Say.
lugubris Dej.

NOTES

Cicindela 6-guttata. Common on fences, stone walls, along the roads and on sidewalks in town.

Cicindela purpurea. I once found this species abundant the last of April on a slight slope, facing south, in an open pasture near Potsdam.

Cicindela vulgaris. This species seems rather rare at Potsdam. I have taken but one or two specimens there; one taken in the Adirondacks.

Cicindela repanda. Not at all common at Potsdam.

Cicindela 12-guttata. Fairly common; abundant in the Adirondacks, principally along the roads.

Elaphrus ruscarius. Have taken but two specimens of this species: these were on wet ground at the edge of a brook.

Blethisa julii. Have taken but a single specimen of this species. This was, I think, taken under stones on the river bank, not far from the water.

Notiophilus semistriatus. Have taken two or three in pastures.

Bembidium graciliforme. One taken in the Adirondacks.

Amara augustata. Abundant at Potsdam. Taken principally by sweeping grass on fairly low ground. They are often high up on the grass-stalks, near the heads.

Calathus gregarius. Quite common at Potsdam: usually found under boards, rails, stones, etc., in the fields. Generally several will be found together.

Platynus pusillus. One taken in the Adirondacks.

Platynus retractus. One taken in the Adirondacks.

Lebia pumila. One taken in the Adirondacks.

Metabletus americanus. Very common: have taken dozens about stones in open pastures.

Cymindis cribrata. Rather rare: have taken five or six at the base of mullein stalks, under the leaves, in a dry pasture.

Collecting in Baltimore Co., Md

By Edw. A. Plitt, Baltimore, Md.

Although we should think that in and around so large a city as Baltimore there would be very few butterflies and moths, yet I have found that nearly all of the various species of the Middle Atlantic States are here represented.

One of the best places for an ardent collector is the well known Clifton Park, situated near the outskirts of the city. The presence of innumerable southern flowers and shrubs, cultivated in the nurseries of the park, is a great attraction for thousands of insects, butterflies and moths.

During the months of June and August I am at this place from early morning till late at night collecting butterflies and moths. Between nine o'clock in the morning and four in the afternoon is about the best time for this purpose. During these hours I have collected beautiful specimens of *Argynnis idalia* and *aphrodite, Limenitis ursula, Papilio philenor, turnus, glaucus* and *troilus*, some of which have an expanse of from four to five inches. One of the finest specimens taken last season was a *Papilio glaucus*, which had two bright yellow spots on the upper wings and whose lower wings were almost completely yellow like those of *turnus*. Besides these there are great numbers of others, such as *Vanessa antiopa, atalanta, huntera, cardui*, etc.

In the evening just as it is getting dark, this same place becomes a regular paradise for a collector of moths, etc. Going in amongst the beds of Phlox, I have caught great numbers of the different species of the Sphinx family; but these always fly so very fast that it is extremely difficult to get at them with the net, for the slightest noise made by the breaking of a twig or the rustling of a leaf will frighten them, and off they go.

As soon as night has settled, the larger moths, *i. e. Citheronia regalis, imperialis, polyphemus, cecropia, cynthia, promethea, Actias luna* and great numbers of *Catocalas*, among which are the red, yellow, white and black kinds, begin to fly around the lamps and electric lights of the park, which attract them in so great numbers that the collector is kept busy with his net and jar, until he returns home, weary with a good day's work and the proud possessor of a fine collection for his cabinet.

Besides this park there is another fine place, called Druid Hill Park. Here I have taken great numbers of *Papilio ajax, Apatura clyton, Grapta comma, Terias nicippe, Anisota senatoria* and *virginiensis*, also many other kinds peculiar to swampy and wooded regions.

The only difficulty in collecting at this place is the presence of large numbers of copper-head snakes, which make this region very dangerous for a collector, for he has to be very

careful where he places his foot. Even such a danger as this will not be thought of when one is chasing a fine specimen.

I clearly remember on one occasion when I surely thought my last hour had come. I had been collecting for a good while, when a beautiful *ursula* crossed my path, flew over the tops of some trees, across a small brook and over a field. It did not take me long to get up to the place where it had alighted, but instead of letting itself be caught, it flew up and then across a wide stream. My mind was quickly made up as to what to do. I waded through the stream, scrambled up on the other bank and ran toward the bush on which it had alighted. I quickly threw the net over my prize, and, stepping closer, wanted to transfer it into my jar. Just as my foot touched the ground I heard a fearful hissing, and before I could look for the cause of it a large snake jumped out at me from under the bush. Thanks to my net, it did not strike me, but got entangled in the bag. Now instead of getting one specimen, I had two, one of which I could not kill very well with my jar.

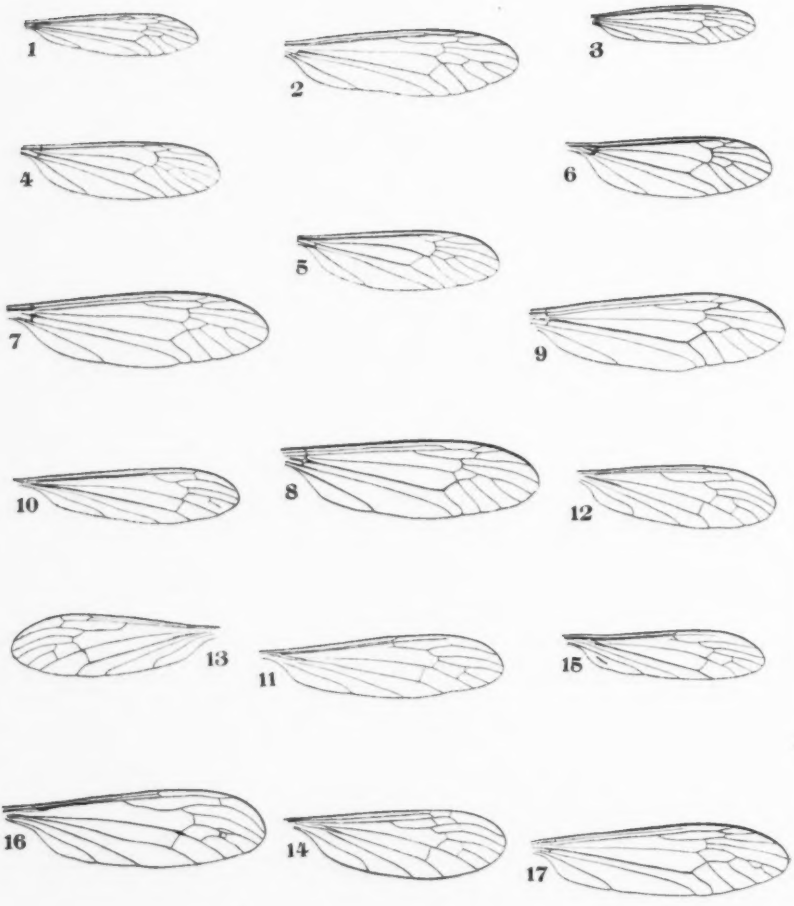
The first thing I did was to get a good strong stick, with which I managed to kill the serpent, which proved to be about five and a half feet long, of a dark brown color, but fortunately for me, not a copperhead.

Thus we see that although collecting here is a little dangerous, Baltimore County ranks high in the production of butterflies and moths, which will always be the delight of our collectors and admirers of Nature.

MR. HENRY L. VIERECK has accepted a position as entomologist with Parke, Davis & Co., Detroit, Mich.

THE collection of butterflies and moths made by the late Dr. Herman Strecker, of Reading, Berks County, Pennsylvania, has been sold to the Field Museum, Chicago, Illinois.

BUTTERFLY BOOTH.—At the State Fair Pavilion the Most Interesting Section in Big Hall.—The collection of butterflies being displayed this year at the pavilion by Fred Burns, of Reno, Nev., attracted hundreds of people daily, and well it might, as they have been sent Mr. Burns from all over the world.—*Newspaper.*



VARIATIONS IN THE WING VENATION IN SOME TIPULIDAE.—DOANE.

Variations in the Wing Venation in some Tipulidae.

R. W. DOANE, Stanford University.

(Plate XVII.)

In all systematic work on the Diptera the wing venation is a character that is used perhaps more than any other in separating the larger groups and in many instances is of real generic and often of specific value, so close does the venation hold to a type. In the families with the more generalized type of venation, however, there is more or less of a tendency to variation especially in the relative length and position of some of the veins in the outer portion of the wing.

In the Tipulidae the presence or absence of the second posterior cell and the length of the petiole by which it is joined to the discal call are characters that are largely used. The cell is always present in normal specimens of *Tipula*. I have before me a specimen of *T. simplex* Doane, in which this cell is entirely wanting in both wings, the wings otherwise being perfectly normal (See Fig. 1; in all the figures only the outline of the wing and the venation is shown, as the marking would in some instances obscure the point that we wish to show). The wings of the male of this species are subject to considerable variation in size and shape and intensity of the markings, but the venation is, as a rule, quite constant. (Compare Figs. 2 and 3.)

One of the principal characters that is often used for separating the genus *Tipula* from *Pachyrhina* is the presence or absence or short length of the petiole of the second posterior cell. In *Pachyrhina* this cell is sessile or with a very short petiole, while in *Tipula* the petiole is usually longer. There is considerable variation in this respect in both genera, however, even within the species, and indeed sometimes in the two wings of the same individual as shown in figures 4 and 5, which are the right and left wings of a specimen of *Pachyrhina ferruginea*, more or less variation is often shown. In the right wing, Fig. 4, the second posterior cell has a very distinct and, for a *Pachyrhina*, rather long petiole. In the left wing, Fig. 5, this

cell is sessile. Fig. 6 is from another specimen of the same genus showing this cell broadly sessile.

Figs. 7, 8 and 9 show the variations that occur in the length of the petiole of this cell and also variations in the size and shape of the discal cell in *Tipula aequalis* Doane.

The position of the posterior cross-vein is a specific character that is often used and is quite constant in some species. In other closely related species it may be of no value on account of the variations that occur. Fig. 10 shows the wing of *Dicranomyia badia* O. S. with the posterior cross-vein in its normal, that is, most usual, position, but it is often found much anterior to this as shown in Fig. 11. Figs. 12 and 13 show the variations that may occur in the position of this vein in the right and left wings of the same individual. (*Limnobia triocellata* O. S.)

In certain groups we often find extra or "supernumerary" cross-veins that may or may not occur in all the individuals of the species or they may be present in only one or in both of the wings. Whenever they do occur their position is quite constant for the species and sometimes for the genera. Fig. 14 shows such a vein occurring in the sub-marginal cell of both wings of a specimen of *Limnobia triocellata* O. S.

A short stump of a vein often occurs near the origin of the praefurca in some species. In Fig. 11 (*Dicranomyia badia* O. S.) and Fig. 15 (*D. Stigmata* Doane) two such veins are shown.

Fig. 15 also shows a remarkable case of a distinct piece of a vein occurring in a part of the wing where a vein never occurs normally

All or a part of a vein may sometimes be wanting in species where it normally occurs. Fig. 10 shows two such veins in the region of the discal cell. Only rarely do we see interpolated cells as shown in Fig. 16 (*Limnobia sciophila* O. S.) and Fig. 17 (*Tipula simplex* Doane). Both of these aberrations occur in the right wing only of these two specimens.

These few examples selected from many that might have been used show two things: first, the ever present tendency to

vary particularly among the more generalized types of wing venation; second, the danger of drawing wrong conclusions in regard to the systematic position of a specimen of a species when represented by only one or two individuals. These variations are doubtless of no value in the history of the species, as they probably disappear in the next generation, although I know of no experiments to test this.

The figures are redrawn from photographs. The markings on the wings, if any, are not indicated in the drawings.

EXPLANATION OF PLATE XVII.

1. *Tipula simplex* Doane, 2nd posterior cell wanting in both wings.
2 and 3. *Tipula simplex*—to show difference in size and shape within the species.
4 and 5. *Pachyrhina ferruginea* Fabr, right and left wing from same specimen. Note presence of petiole of 2nd posterior cell in 4 and absence in 5.
6. *Pachyrhina ferruginea* Fabr. Note 2nd post. cell broadly sessile.
7, 8, 9. *Tipula aequalis* Doane, to show variation in shape of discal cell and length of petiole of 2nd post. cell.
10. *Dicranomyia badia* O. S. Note abbreviated vein at end of discal cell and abbreviated branch of the 4th vein; posterior cross vein in normal position.
11. *Dicranomyia badia* O. S. Note posterior cross vein before the discal cell; also spur on praefurca.
12 and 13. *Limnobia triocellata* O. S. Note difference in the position of the posterior cross-vein in the right and left wing of the same specimen.
14. *Limnobia triocellata* O. S. Note supernumerary cross veins in submarginal cell.
15. *Dicranomyia stigmata* Doane. Note short piece of vein in spurious cell.
16. *Limnobia sciophila* O. S. Note two interpolated cells.
17. *Tipula simplex* Doane. Note interpolated cell.

MR. DAVID T. FULLAWAY, of California, has received an appointment to the Hawaiian Experiment Station at Honolulu.

PRINCE FERDINAND, now King of Bulgaria, is an entomologist of note and a member of some of the European societies. An article on the King appeared in a recent number of *Rovartani Lapok*. We believe a good entomologist should make a good ruler.

Notes on the Early Stages of some Pamphila.

By Philip Laurent.

Several years ago the writer on observing a species of *Pamphila* depositing her eggs on a blade of grass made up his mind to try and see if he could not do something towards unraveling the life history of some of these interesting butterflies, a genus of butterflies of which there is comparatively little known of their early stages—and yet so easy to find out if one will but go to the trouble. The reason that the preparatory stages of many of the species mentioned in this article are not complete, is not because the species are hard to raise; but to the fact that business or something else always called me away about the time I should have been at home attending to my larvae. It is true that, on several occasions I took my larvae along with me, but as a rule I had very little success when I did this; this is particularly true of *Pamphila aaronii,* the larvae of which I carried from Philadelphia to Johnson City, Tenn., only to loose them on my arrival at the latter place by the lid of the jelly jar becoming loose. The eggs of *Pamphila* are easily secured; the larvae are easy to raise; and the food plant (grass in nearly every, if not in every case) can be found by every one. With care in keeping the cages (which should consist of test tubes or jelly glasses during the early stages) free from moisture, there is no reason why one should not be successful in rearing *Pamphila.* To secure the eggs, plant a small piece of grass sod in a flower pot and cover the same with netting—the high, wire fly-traps answer admirably for this purpose. In the cage place your female "skipper," and the chances are that in forty-eight hours or less time eggs will be found on the blades of grass. As a rule, the eggs are deposited during the night. In securing the butterflies I follow the same method as if I was collecting specimens for my cabinet; with the exception that, when the butterfly has succumbed to the effects of the cyanide, I immediately remove the insect from the jar, placing each one in a separate pill box. On arriving home you will find that your butterflies have recov-

ered from the effects of the cyanide and are as lively as crickets. In nine cases out of ten you will find that the females will deposit fertile eggs. The eggs should be placed in cardboard boxes until they hatch; by no means place them in glass or metal boxes, as they are apt to mildew. The larvae seem to feed more readily on the coarser species of grasses; this is particularly true after they have passed the second moult. I have left out several interesting facts concerning the breeding of *Pamphila*, as I do not wish to consume too much of the valuable space of the NEWS.

1. **Pamphila massasoit.**

Two females of this species captured on the fifth of July, deposited eggs on the seventh of July. The eggs are nearly round; the base is slightly flattened; color of egg, opake white. The eggs hatched on July eighteenth. When first hatched the larvae are of a dirty yellow color, and rather slender; body sparsely covered with long yellow hairs. Head nearly smooth, and of a light chestnut color. First moult occurred on July twenty-eight. The larvae are now of an olive green color, otherwise same as when first hatched. This species has been reported as being double brooded in New England, but in the vicinity of Philadelphia I think we have but one brood. I have never seen the butterfly on the wing before the fifteenth of June, or later than the fifteenth of July. It is very common in southern New Jersey about the fourth of July, and at that time the butterfly can be found on the flowers of the button-ball bush, as well as on the flowers of the cranberry and the flag.

2. **Pamphila zabulon.**

A female of this species was confined in a cage on May the twenty-fourth, and the next day several eggs were laid. The egg is of a pale green color and somewhat broader than high; the egg is covered with numerous fine depressions, and the apex is slightly flattened. The eggs hatched on the eighth of June. When first hatched the larvae are of an opake white color, but this changes to a dark green twenty-four hours after

the larvae start to feed. Head and collar dark brown, the head being roughly corrugated. The first moult occurred on the sixteenth of June, the larvae now being of a yellowish green color, otherwise the same as before. June the twenty-fourth the second moult occurred. Larvae are now of a grass green color, and are sparsely covered with numerous dark colored stiff hairs and also with numerous white spots, a greenish dorsal line is also in evidence, along with a sub-dorsal line of the same color. The head is light, or chestnut brown, with the suture very distinct. July third, the third moult occurred. The larvae are now of a darker green, and the anal shield shows a pinkish tinge, otherwise same as before. On July the thirteenth the larvae moulted for the fourth time. I noticed no difference in the larvae since the third moult. July the twenty-fourth the larvæ went into the chrysalis state, first forming a resting place in which to undergo this change by drawing two or more blades of grass together. On August the fourth a female butterfly emerged, the next day two males made their appearance. This species is double-brooded in the neighborhood of Philadelphia.

3. **Pamphila hobomok.**

A description of the egg and larval stages of this species would be almost identical with that of *P. zabulon*, so I omit the description. However, some of my larvae went into the chrysalis state after the fourth moult, while others passed a fifth moult. The larvae when full grown are somewhat larger than those of *P. zabulon*, and somewhat darker. Have had this species to hibernate over winter in the egg, larval and chrysalis states. The species is double brooded in the vicinity of Philadelphia.

4. **Pamphila metea.**

On the fifteenth of May, at Clementon, N. J., I secured several females of this species. The eggs were laid on the seventeenth of May. The egg is of an opake color, and covered with very fine reticulations; the egg is nearly hemispherical in shape, and has the apex slightly flattened. The eggs hatched

on June the ninth, or twenty-two days after they had been laid. When first hatched the larvae are of an opake white, but twenty-four hours after starting to feed they were of a dark green color, with the body sparsely covered with long, light grayish hairs. The head and collar are nearly black, and shiny. Feet and prolegs of an opake white color. The first moult occurred on June the nineteenth. Shortly after moulting the larvae assumed a clear green color, otherwise I see no change. The second moult occurred on June twenty-eighth. The body is now of an oil green color, otherwise can notice no change since last moult. Third moult occurred July the ninth, but I notice no change in the appearance of the larvae. Fourth moult occurred July the eighteenth. The larvae are now of a very dark green color, almost approaching a brown. Fifth moult occurred on July the thirty-first. The larvae are now of a dark brown color, and covered with numerous brown spots of a darker color than the body; a distinct narrow dorsal line of a greenish color is also noticed. August eleventh. The larvae are now about full grown, and are about one and an eighth inches in length when body is extended. August twelfth. First of the larvae changed to chrysalis to-day. The chrysalis is about three-quarters of an inch in length, at first of a light green color which two days afterwards gives way to a drab color. I kept the chrysalids under my eye until the first of October, when no imagoes having emerged, I placed the cage containing the chrysalids in a cool, dry part of the cellar. I removed the cage from the cellar about the first of May of the following year. Three specimens emerged between the seventh and the eleventh of May. I believe the species is single brooded in southern New Jersey.

5. **Pamphila leonardus.**

Secured several females of this species at Atco, N. J., on September the third, fertile eggs were laid on the fifth of September. The egg is half again as broad as high; of an opake white color, and very finely punctuated. Eggs hatched on the sixteenth of September. The larva when first hatched is of an opake white color, and sparsely covered with long hairs.

The head and collar are brown, and but slightly reticulated. The first moult occurred on October fourth; twenty-four hours after moulting the larvae were of an oil green color, and thickly covered with dark brown spots; an almost indistinct dorsal line is also present. My larvae now refused to eat, although they remained alive until November first. The butterfly is single brooded in southern New Jersey.

6. **Pamphila otho.**

From a female confined on the fourth of July I secured one egg on the sixth of July. The egg is yellowish white; apex slightly flattened, and is somewhat broader than high. On July the fifteenth the egg hatched. The larva when first hatched is of an opake white color, this color giving way to that of an oil green after the larvae had been feeding for twenty-four hours; the larva is also covered with dark brown spots, and short, dark colored, spine-like hairs. The head is very finely reticulated, and of a blackish color. The first moult occurred on July the twenty-fourth, but I notice no difference in the appearance of the larva. On August the third the larva moulted for the second time, but I notice no difference except in the size. The third moult occurred on August the sixteenth. The larva is now about a half inch in length, and of a greenish brown color; a distinct dorsal line is visible. October fourth my only larva died.

7. **Pamphila mystic.**

On July the seventh I secured a few eggs of this butterfly from Mr. H. E. Wilford, of Batavia, New York. The egg is almost hemispherical in shape, and is covered with fine reticulations; the color of the egg is pale green. Larvae emerged on the ninth of July, two days after I received them from Mr. W. Shortly after emerging the larvae assume a light yellow color. Head and collar are black and shiny, and covered with very fine reticulations. The first moult occurred on July the eighteenth. Twenty-four hours after moulting the larvae were light green in color, and covered with numerous white spots. Second moult occurred on July the twenty-sixth. The body is

now covered with numerous spine like hairs; a dorsal line of a greenish color is also in evidence. Third moult occurred on August the seventh. The larvae are now about a half inch in length, with the body of a dark brown color; otherwise, same as before.

8. Pamphila cernes.

Two females placed in the cage on May twenty-fourth deposited some thirty eggs on the twenty-fifth. The egg is almost round, of an opake white color, and finely reticulated. The first larvae appeared on the eighth of June. The larvae when first hatched are of the same color as the egg, but twenty-four hours after feeding they assume a dark green color. The head and collar are almost black, and but slightly punctuated. First moult occurred on June seventeenth. Shortly after moulting the larvae were of a yellowish green, and covered with numerous brown spots. A dorsal line is plainly visible. Second moult occurred on June the twenty-eighth, but I notice no change in the larvae since first moult. The third moult occurred July the sixth. With the exception that the larvae are larger, and the dorsal line more distinct, I notice no change since last moult. July sixteenth the fourth moult occurred, but I notice no change in the appearance of the larvae since the third moult. On July the twentieth a number of the larvae entered the chrysalis state; for the first two days the chrysalis is of a greenish color, after which it changes to a drab color. The first imago made its appearance July twenty-eighth. Between July the twenty-eighth and August fifth some twenty imagoes made their appearance. The species is double-brooded in the vicinity of Philadelphia.

9. Pamphila manataaqua.

A female of this species was placed in the cage on June fourteenth, and during the fifteenth she deposited a number of eggs. The egg is somewhat broader than high, and is of a pea green color; distinctly marked with numerous punctuations, and the apex is slightly flattened. I was successful in raising this species, but aside from this description of the egg I cannot give the

other early stages, as I have lost my notes. A number of the butterflies emerged from the chrysalis state from August the twenty-eighth to September the first. The species is double-brooded in the vicinity of Philadelphia.

10. **Pamphila verna.**

From a female caged on June twenty-ninth, I secured a number of eggs on July first. The egg is of a light green color; slightly wider than high; finely punctuated, and apex flattened. The larvae hatched on July the thirteenth; when first hatched they are of an opake white, but twenty-four hours after feeding the larvae were of an oil green color; the body is marked with numerous brown spots. Head and collar almost black, with slight punctuations. First moult occurred on July the twenty-second. The larvae are now of a lighter green, with numerous black spine-like hairs scattered over the body; a faint greenish dorsal line is present. Second moult occurred on August second; twenty-four hours after moulting the larvae showed a heavy, greenish dorsal line, as well as a sub-dorsal line on each side of the body; the body is also covered with numerous white spots. August eleventh, the larvae moulted for the third time. Twenty-four hours after moulting the larvae assumed a lighter shade of green, otherwise I see no difference since last moult. Fourth moult occurred on August twenty-second. I notice no change since last moult. A fifth moult occurred on September fourth. The only change noticed since last moult is in the color of the body, which is now of a yellowish green. After carrying this insect successfully through its five moults, I lost them by a windstorm which blew my cage over, thus allowing the larvae to escape.

11. **Pamphila panoquin.**

Secured three female specimens of this butterfly at Anglesea, New Jersey, on June eighteenth; from these females I secured some twenty fertile eggs on the nineteenth. The egg is of a pea green color, and is about as high as broad, with very fine reticulations. June twenty-seventh the eggs hatched. When first hatched the larvae are of an opake white color, and rather

slender. The head is of a light brown color, and is much wider than any part of the body. Twenty-four hours after starting to eat the larvae assumed a greenish, yellow color. July the seventh my last larva died. I gave the larvae grass from the salt marshes as well as grass from my garden in Mt. Airy, and the larvae ate both, so the food plant had nothing to do with their death. The species is double-brooded, the first brood being at its height about the fifteenth of June, while the second brood is at its height about the fifteenth of August. It is strictly a maritime species, although, a specimen was captured in Fairmount Park, Philadelphia, by Mr. Haimbach some years ago.

12. **Pamphila bimacula.**

Eggs of this species were sent to me by Mr. H. E. Wilford, of Batavia, New York. The egg is light green in color, and finely reticulated; somewhat broader than high, with apex slightly flattened. The eggs did not hatch.

13. **Pamphila pontiac.**

Two females of this species were secured on the fifth of July, the eggs being deposited on July seventh. The egg is entirely different from any other *Pamphila* egg that I have ever seen, being rather flat, and half again as broad as high, and of a light lemon color; finely reticulated, and apex slightly flattened. The eggs hatched on July the nineteenth. The larvae when first hatched are of a light lemon color. Head dark brown and finely reticulated. The first moult occurred on July the twenty-eighth. Shortly after moulting the larvae assumed a very light green color. Numerous dark brown, spine-like hairs are scattered over the body. The head is now of a light brown. The species appears to be single brooded in Eastern Pennsylvania and southern New Jersey. I have never observed the butterfly before the end of June or later than the middle of July.

14. **Pamphila dion.**

Eggs of this species were sent to me by Mr. H. E. Wilford, of Batavia, New York. I received the eggs on the eighth of

July. The egg is of a light green color, and finely reticulated, and is somewhat broader than high; the apex is slightly flattened. On July the sixteenth the larvae emerged from the egg. The body of the larva twenty-four hours after hatching is of a yellowish green, and is sparsely covered with yellowish hairs. Head and collar shiny black. Larvae moulted for the first time on July twenty-sixth. A few hours after moulting the body of the larva became a light green.

15. **Pamphila aaronii.**

Brought home from Anglesea, New Jersey, on June the twelfth, three females of this butterfly. The eggs were laid on the thirteenth of June. The egg is slightly wider than high, and of an opake white color, finely reticulated, and the apex is slightly flattened. Eggs hatched on June twenty-second. The larvae when first hatched have the body the same color as the eggs, but twenty-four hours after starting to eat the larvae were of a greenish drab color, otherwise I notice no change in the appearance of the larvae. First moult occurred on July the first; twenty-four hours after moulting the larvae assumed a beautiful, light green color; all the legs are the same color. This species is strictly a maritime one, being very common on the salt meadows of southern New Jersey. The species is double-brooded, the first brood being at its height about the fifteenth of June, and the second brood about the fifteenth of August. It is often found in company with *P. panoquin*, both species having the same habit, and both appearing on the wing about the same time. The August brood of both these species will outnumber the June brood by ten to one.

16. **Pamphila fusca.**

A female secured on August the seventeenth deposited eggs the same day. The egg is shiny, pearl white, and not opake white as is so often the case with the eggs of *Pamphila*. The surface of the egg is very finely reticulated, and the apex of egg is decidedly flattened. Eggs hatched on August the twenty-seventh. The larvae when first hatched are of an opake white color. Head and collar very light brown. This

was an exceptional case for me, as I could not induce the larvae to feed. The species is double-brooded in eastern Pennsylvania and southern New Jersey.

17. **Pamphila viator.**

Secured a number of eggs of this species from Mr. H. E. Wilford, of Batavia, New York. The eggs were laid about July the seventh. The egg is grayish in color; finely reticulated, and somewhat wider than high, with apex but slightly flattened. The eggs hatched on July the sixteenth. The larva of this *Pamphila* is entirely different from the larvae of any other *Pamphila* that I have ever seen. Twenty-four hours after hatching the larvae were of a grayish color, and covered with numerous dark-colored, spine-like hairs. The head and collar are light yellow and covered with numerous dark brown spots. First moult occurred on the twenty-fifth of July. Twenty-four hours after moulting the larvae were of a brown color, otherwise the larvae are the same as before.

Four new Hymenoptera.

By S. A. ROHWER, Boulder, Colo.

Belomicrus larimerensis n. sp.

♀. Length 5 mm. Anterior margin of clypeus produced in middle to a broad, rounded process, at the side of which is a small tooth; clypeus shining, without punctures; head finely granular; behind the antennae is a shallow, smooth depression; on the vertex behind the summit of each eye is an angular protuberance; pronotum rounded, not carinated or dentate; dorsulum sculptured like the head, scutellum somewhat more coarsely so; mesopleura sculptured about as the scutellum, below tegulæ there is a deep vertical furrow; squamæ linear, attached to the postscutellum for their entire length, slightly rounded on the outer margin, perhaps a little broader anteriorly; spine very short; posterior face of metathorax bounded on the sides by distinct carinæ which are abruptly truncate above, irregularly obliquely striated, below spine a vertical carina; marginal cell pointed at apex, widest where the first tr. cu. is received; tran. med. a little anterior to basal; abdomen closely, finely punctured; pygidium broad, rounded at apex, punctured with large separate punctures, color black; two spots on pronotum, tubercles, tip of femora, tibiæ beneath creamy-white; spot on scape beneath at apex, flagellum beneath somewhat, and tarsi tes-

taceous; tegulæ, narrow apical margin of abdominal segments, yellowish testaceous; pygidium red; wing dusky hyaline, nervures dark brown; face, clypeus, side of thorax with silvery pubescence.

Habitat.—Larimer Co., Colo., between 8000 and 9000 feet, July 18, (C. P. Gillette). Co-types in collection of Colo. Agricultural College and in author's collection.

This may be the female of *B. forbesii* Rob. but differs as follows from his description of that species: no depression on posterior face beneath spine, sides of abdomen are not parallel, the wings are strongly dusky, nervures brown.

Crabro (**Paranothyreus** Koll.) **gillettei** n. sp.

♀. Length about 7 mm. Clypeus broadly truncate, very finely punctured. some large punctures near margin, carina very low and broad; mandibles with a small subapical tooth, at apex obtusely truncate; width of eyes at the clypeus a little more than the width of the clypeus; facial basin smooth, shining, not strongly margined above; between the ocelli and the facial basin the head is striated with irregular striæ; outer orbits and head back of ocelli shining, with sparse, fine punctures; ocelli in a low triangle, the distance between the lateral ones and the nearest eye margin about the same; lateral ocelli back of a line drawn between the superior orbits; furrow from lower ocellus distinct, strong, extending to base of antennæ; pronotum not carinated or dentate, anterior angles sharp, but without teeth; most of dorsulum and scutellum shining, sparsely punctured with rather small punctures; anterior margin of dorsulum with short longitudinal striæ; middle of dorsulum from anterior margin with a distinct carina; mesopleura shining, punctured like dorsulum, below tegulæ there is a distinct pit; enclosure and sides of metathorax not strongly defined; enclosure with a few longitudinal striæ; middle furrow shallow, not extending on posterior face, slightly broader at apex; posterior face with a triangular fovea, apex beneath; finely reticulate; metapleura finely, transversely striate; longest spur of hind tibiæ not as long as the first joint of hind tarsi; abdomen impunctate; pygidium broad, flat, sparsely punctured with large punctures. Black; ocelli (dry) reddish; two spots on pronotum, tubercles, spot on scutellum, line on postscutellum, four anterior tibiæ, except within, posterior tibiæ at base, spot on each side of first three abdominal segments (the two apical segments have faint indications of spots), *yellow;* tarsi testaceous; wings at base yellowish at apex hyaline, nervures and stigma testaceous; the usual pubescence undoubtedly occurs, but the specimen is somewhat worn and it is wanting.

Habitat.—Larimer Co., Colo., between 8000 and 9000 feet, July 18, (C. P. Gillette). Type in the collection of Colorado Agricultural College.

This belongs to Fox's group *hilaris* Sm. The black clypeus, mandibles and venter are good superficial characters to separate this species from its allies. The sculpture is much finer than in any allies except *snowii* from which it differs in the wider space between the eyes at the clypeus and other characters.

Crabro (**Xylocrabro** Ashm.?) **besseyae** n. sp.

♀ Anterior margin of the clypeus rounded out, carina distinct; mandibles at apex tridentate, at base within with two large teeth; width of the eyes at the clypeus a little greater than the width of the clypeus; first and second flagellar joints equal; head closely punctured with rather large punctures, more sparsely so on vertex and posterior orbits; ocelli in an obtuse triangle; distance between the lateral ocelli and nearest eye margin about the same; furrow from anterior ocellus rather indistinct; pronotum rather feebly carinated, anterior angle with a small tooth; dorsulum punctured with rather large, strong punctures; scutellum sparsely punctured; mesopleura anteriorly sharply truncated, transversely striated, with some large punctures among the striæ; enclosure and sides of metathorax not sharply defined; enclosure and posterior face rather coarsely, irregularly, closely punctured; postscutellum more finely so; furrow of metathorax extending to below middle of posterior face; metapleura very finely, transversely striate; anterior femora at base beneath with a small tooth; first rec. rather near apex of first cubital cell; abdomen, both dorsal and ventral surfaces, punctured with rather small, distinct, well-separated punctures; pygidium about twice as long as width at base; apical half strongly contracted and narrowed, basal half broad, punctured with large punctures; scape at apex, spot on mandibles, two spots on pronotum, tubercles, anterior femora beneath, four posterior femora beneath for basal half, spots on dorsal abdominal segments 2-5 *bright yellow;* clypeus, cheek and inner orbits with dense silvery pubescence; thorax with some white hairs; wings strongly dusky, iridescent; venation black.

Habitat—Boulder, Colo., May 26, 1908, at flowers of *Besseya plantaginea* (S. A. Rohwer).

This species is nearest to *stirpicolus* Pack., but differs as follows: metathorax above and behind not coarsely striated, etc. The shape of the pygidium should distinguish this species at once.

Ichneutidea secunda n. sp.

♀. Length 4½ mm; length of anterior wing 4 mm. Head shining, impunctate; ocelli in a low triangle; a furrow from lower ocellus to occiput; antennal foveæ quite distinct, wider above the antennæ; an-

tennæ 25-jointed, third joint but little longer than fourth, the last five joints but little longer than wide; sides of the superclypeal area depressed; clypeus round on anterior margin; mesonotum shining, impunctate, except anterior lobe, which finely punctured; scutellum with well-scattered, small punctures; mesopleura shining, impunctate; metathorax smooth, shining, without an areola; posterior femora rather robust; posterior tibiæ tapering from base to apex; first joint of hind tarsi a little longer than 2. .3; tarsal claws simple; stigma angulate beneath; first abscissa of radius a little longer than second, but not as long as the oblique transverse cubitus; second transverse cubitus about equal to the second abscissa of radius; second cubital cell pointed at base beneath; basal nervure bent; transverse median more than half its length beyond basal nervure; abdomen impunctate; lateral carinæ of first dorsal segment more or less developed. Color, reddish-yellow; antennæ, eyes, black spot enclosing ocelli, middle lobe of mesonotum. scutellum, metathorax, mesopleura and mesopectus; spot on apical dorsal segments of abdomen, sheath, *black;* apex of hind tibiæ and their tarsi infuscated; wings hyaline, iridescent, apical third a little darker, nervures and stigma pale brown; dorsulum of abdomen and legs with short reddish-yellow pubescence.

Habitat.—Geneva, Nebraska. Type in the collection of the University of Nebraska, paratype in author's collection.

This species is quite distinct from *I. abdominalis* Cress. the only other species of this genus, being known at once by the different color—*abdominalis* has the head and thorax black.

One Day's Collecting, with a Description of a new Noctuid.

By Alex. Kwiat, Chicago, Ill.

On Decoration Day, May 30, 1908, the writer, with Messrs. Beer and Kidlica, went on a collecting trip to Hessville, Ind., where we were joined by Will Hartman, Jr., who resides there, making a party of four, all Lepidopterists.

Hessville, Indiana, is just four miles east of the Illinois line and about four or five miles south of Lake Michigan. It is not strictly in the sand dune region, although there are occasional blow holes and shifting ridges. Generally speaking, it may be described as a succession of sloughs and sandy ridges, the latter usually covered with stunted oak, hop elm, cottonwood, the small-leaved poplar, some willow, birch, sassafras,

button bush, hazel, blueberry and other trees and shrubs. There is a great variety of low woody perennials on the sides of the ridges.

Most of our collecting is done on the Hartman Farm, which is largely wooded. Drainage and a little care has resulted in a larger timber growth and grassy sloughs. The woods are overgrown with ferns. The open ridges are covered with blackberries and lupine, phlox, goldenrod, milkweed of various kinds and other flowering plants abound here and on the edges of the sloughs. There is also a lot of flowering spurge (*Euphorbia corollata*).

The ride from Chicago, about 23 miles, occupies an hour's time, and after depositing the greater part of our luggage at the Hartman home, we got after the butterflies. It was a windy and more or less cloudy day. In exposed places the butterflies and moths would not rise unless disturbed and would then be difficult to capture, for the wind would carry them away.

One object we had in mind was to locate *Lycaena scudderi* and if possible observe its ovipositing habits. We found the butterflies, a few of them including several females, but they would not lay an egg, even though we entreated them and coaxed them to do so.

A little farther on where the sloughs were somewhat protected by timber along the sides collecting was better. In the woods there was practically nothing to be had and we spent little time there.

Toward the middle of the afternoon we were more or less discouraged, for nothing particular had been taken except a tattered specimen of *Cirrhobolina deducta* by Mr. Beer, and we were trailing back to the house when the writer caught a glimpse of a small moth resting on the common field phlox (*Phlox pilosa*), which was in full bloom. The flower was swaying wildly in the wind and the moth seemed to disappear immediately. A call brought the others running and while they stood ready to bag it with the net if necessary, the specimen was bottled without difficulty.

The moth was such a fine example of protective resemblance that even when the exact spot was pointed out where it rested, Mr. Beer and Mr. Hartman were unable to see it. Immediate search was instituted for more and during the balance of the day we took twenty-three specimens, some of them in coitu. The moth has since been sent to Prof. John B. Smith, who declared it to be a new species and has described it as *Heliolonche indiana.*

It seems paradoxical that a new species and seemingly a common one should be found in such a well-collected territory as this near Chicago. It can perhaps be explained by the habits of the moth, which are decidedly sluggish, specimens usually dropping to the ground when disturbed. This, coupled with its close resemblance to the flowers upon which it rests, may account for it.

Following is a list of the other species taken during the day:

Argynnis myrina
Neonympha eurytris
Chrysophanus hypophlaeas
Lycaena scudderi
Lycaena pseudargiolus
Papilio polyxenes
Papilio troilus
Pamphila hobomok
Nisoniades icelus
Nisoniades juvenalis
Eubaphe brevicornis
Plusia aerea
Erastria malaca
Prothymia semipurpurea
Acontia candefacta
Metathorasa monetifera
Pangrapta decoralis
Euclidia cuspidea
Apaecasia detersata
Apaecasia defluata
Xanthotype crocataria
Loxostege chortalis
Tholeria reversalis
Crambus laqueatellus
Stenoma schlaegeri
Pamphila cernes
Cirrhobolina deducta
and several unidentified Micros.

All perhaps not exceptional, but the new species enlivened an otherwise dull way, which was therefore declared a successful one.

This, however, was not the end of the trip for us, for we came prepared to spend the night in the woods with lights and sugar to attract the night fliers. This, while not a long story, will be reserved for another occasion.

Professor Smith's description of the new species is as follows:

Hololonche indiana n. sp, Smith.

"Head, thorax and abdomen black, clothed above with long fine whitish hair: the tint on head tending to yellowish and on the thorax to purplish: in well preserved specimens the segments of the abdomen are marked with paler rings and in the males there is a tendency to a yellowish anal tuft. Beneath the hair is finer and more sparse, yellowish. The primaries at first sight appear to be almost uniformly purplish carmine. Closer examination of a large series shows that the narrow even terminal space is decidedly paler with a purplish wash over a luteous base, while the median area is paler and decidedly more purplish. The contrasts are not very marked in any case, and sometimes almost absent. Fringes whitish. Secondaries black, immaculate, fringes white. Beneath; primaries black on disc, costal margin more or less carmine tinged the apex and outer margin tending to luteous, inner margin more or less yellowish: a large more or less obvious deeper black discal spot: secondaries with costal and apical areas carmine, then black to the inner margin, fringes whitish, an indefined large discal blacker spot. Expands .62 - .72 inches or 15.5 - 18 mm.

"*Habitat.*—Hessville, Indiana, May 30th, June 6, 13.

"Ten males and nine females, all in good or fair condition from Mr. Alexander Kwiat, at whose request I have prepared the above description and who will give further details concerning the habits of the species and the circumstances relating to its capture."

On the upper side there is little variation. On the underside there is a considerable range in the proportion of the black and purplish areas. Sometimes the black predominates, leaving only a narrow purplish or carmine costal and apical area: the other extreme is where the wing has a carmine wash over a yellowish base, the black restricted to a large discal spot a subterminal band and a basal shade extending somewhat through the centre of the wing.

In structural details the species agrees in most details with *modicella*. The front is not protuberant and there is a narrow thickened frontal ridge along the inferior border. The anterior tibiae are somewhat shortened, broad and flattened with a very long curved claw-like spine at the inner side of tip and two stout spines above it: at the outer side there is a shorter and smaller curved spine at tip and two others not much smaller

above it. The spines of the middle tibiae are long and distinct in the hairy vestiture; those of the posterior tibiae are small, scanty and concealed so that the member seems unarmed to ordinary examination.

NOTE.—To complete the information on this species the writer and Mr. Arthur Herz found on July 4th, what we take to be the larvae of this species feeding on the seed pods of the Phlox. Unfortunately they pupated before a description could be taken.

A Hunt for Saldoida Osborn.

By ANNIE TRUMBULL SLOSSON.

In the winter of 1898-99 I was in Punta Gorda, on the west coast of Florida. One day while out collecting I sat down on a fallen tree to rest. It was a damp, grassy spot and there were many ants running over the ground. While idly watching them I noticed one which seemed different from the others and stooped to pick it up for examination.

To my surprise as my hand approached it the supposed ant, instead of running away, skipped, jumped or leaped like a flea or cricket and disappeared in the grass. I was puzzled and excited. Had I discovered a saltatory ant new to science? I searched carefully but saw no more of the odd creature that day. Returning to the spot a few days later I again saw it and with much difficulty captured it. It was an Hemipter but quite new to me and I thought it immature. A tiny, reddish-brown insect, its disproportionately large eyes and long, conspicuous antennae gave it a queer brownie-like look. I saw no more specimens and soon after left Punta Gorda.

In the following spring as I was sending some Hemiptera to Prof. Uhler I included this curious unique. He was much interested in it, told me it belonged to the Saldidae and possibly represented a new genus. But he did not care to found such a genus on one specimen alone.

The next winter 1899-1900 I spent a few days in Jacksonville, Florida. Wandering one afternoon in the suburbs of the city I stooped to examine a plant growing in a sort of ditch

at the side of the road. There was no water in this but the soil was damp and again ants were running over the surface. I watched them not thinking at all of my former experience and the little Saldiid, when suddenly I saw an alien among the others and soon captured it. It was the same big-eyed little imp I had taken at Punta Gorda or seemed so to me. But I searched vainly for other specimens. That summer when sending some Hemiptera to Prof. Herbert Osborn I put into the box my two Saldiids. Prof. Osborn at once decided that they represented an undescribed genus and also two different species. These he described—Can. Entom. Vol. xxxii, p. 181. The genus he named *Saldoida*, the two species, respectively, *slossoni* and *cornuta*. I visited Florida every winter after this and always searched for my agile, mud-loving treasures but in vain. I had, however, discovered in an old box of duplicates, one damaged specimen of *Saldoida*, about whose capture I could remember nothing. It was labelled simply "Florida." At this specimen I often looked to refresh my memory as to the general appearance of the rare insect and with ardent hopes that I might sometime again find similar species.

I was detained in the North during the two winters of 1904-1905 and 1905-06 and thought that I should never again visit Florida. But an attack of grippe last December changed my ideas and I decided to go a little later to the west coast, selecting Belleair on Clearwater Harbor for my headquarters. This is about twenty-five miles west of Tampa and a charming spot. I reached there on January 22d, found few signs of spring and almost no insects.

It was an unusually backward, tardy season, the nights cold and even frosty until late in February. But just before the advent of March the warm weather came very suddenly and animal and vegetable life became abundant.

A few weeks before coming South I had received a letter from Dr. Otto Heidemann telling me that Prof. Reuter of Finland was anxious to examine specimens of *Saldoida* while engaged in study of the family. I dared not risk sending my precious unique across the seas and told Dr. Heidemann so.

But I added that I should soon be in Florida and hoped to find again specimens of the rare little creatures. As I had looked for them already for ten years with no success this hope seemed an uncertain and feeble thing. I cherished it, however, and searched often in the most promising spots for the tiny Saldiid but always vainly.

As often happens in this odd life of ours I found it at a time when I was not hunting for it, not even thinking of it. I had been delighted to discover for the first time a colony of *Atta,* one of the ants which make fungus-gardens. I had read with great interest of their habits and Mr. William T. Davis had told me of watching colonies at Lakehurst. I was much excited over my own recognition of the little gardeners. For several days I spent hours at a time bending over the nest and watching the ants returning from their quest with material for planting or keeping up the fungus-garden. It was while I was trying to keep track of one of those on its circuitous, wandering way that I noticed a strange looking ant on the damp soil. Not thinking of *Saldoida,* interested at the moment in ants and ants only, I wet my finger and lifted the creature to drop into my bottle. As I did so I was conscious that I had crushed it. Now ants do not crush easily and the apparent softness of this one's body surprised me. But I forgot it in a minute as I intercepted the next little agriculturist and robbed him of his small burden. I was much occupied for the rest of that day and so did not even look over the contents of my various alcohol and cyanide bottles. But lying awake that night and living over, as one often does, the field experiences of the day I thought suddenly of the crushed insect. In a flash I remembered *Saldoida* and felt that I had again found one of the genus. I could not wait but struck a light, poured out the contents of the cyanide bottle and with my magnifying glass searched for the specimen. I found it, broken and crushed but plainly recognizable as what I had so long sought.

Of course I went to the spot next morning; in fact I went nowhere else, spending hours at the damp piece of ground

near the Atta's home, with eyes bent steadily upon the surface of the soil where ran scores of ants, watching for sign of a stranger. One single specimen of what I wanted rewarded my search and I went home, cramped, stiff, with aching eyes and muddy gown but a contented mind. I spent many days in a like manner. I soon learned to recognize at a glance the presence of a *Saldoida*. The little creatures have quaint ways of their own not at all ant-like. Their long, conspicuous antennae are waved from side to side as they run swiftly about. They never as far as I know, leap except when startled.

But to recognize this insect is one thing, to capture it is quite another. I lost many, more, I think, than I secured. I tried varying methods, the most successful one being the holding my net near the prey and "shooing" the spry little fellow into it. But this often failed. However I succeeded in securing some half dozen specimens, full grown and perfect, with a few others which were either injured or immature. Among these Prof. Osborn found both the described species, *slossoni* and *cornuta*. Of *slossoni* there were one or two males, not before recognized, the species having been described from a female specimen. The male of *cornuta* is yet to be discovered.

Whether the association of *Saldoida* with ants is accidental I cannot say. I only know that I never found one except in their company. But again I never saw either ant or Saldiid take the slightest notice of one another or seem conscious of each other's presence.

As is almost always the experience of a persistent and close searcher for a particular thing, I was rewarded, not only by success in finding what I was seeking but by discoveries and captures in other lines. Finding that the most likely spots were damp, grassy places especially where the little sun-dew (*Drosera*) was growing, I frequented such localities. The Saldoidas were apparently often in hiding among the low grass and herbage. To start them out I pulled up the plants by the roots. This would often send out a swiftly running little imp, waving his long antennae as he went. But it showed me other things as well. Many small coleoptera were turned up. *Heter-*

ocerus pusillus not common in any other locality visited by me was frequently seen, and *Haltica rufa* was so abundant about the roots of grass as to be a nuisance. An unknown *Acalles* was hailed with delight when the first specimen appeared, but it soon grew rather common and proved to be *ventrosus*. Another weevil was abundant, its brassy hue shining in the sun as I stirred it up from the soil, *Tyloderma aereum*. Two or three species of *Tachys*, many small Staphylinids and scores of *Limnichus nitidulus* were taken thus. Several specimens of a carabid new to me with odd deeply pitted elytra proved to be *Selenophorus fossulatus* and I took three specimens of *Hydrochus rugosus* which I had never found before. Sometimes a pupa was found in the soil, or the whitish grub of some scarabid beetle. So my search was not a monotonous one but full of interest and excitement and I shall never regret the long hours I spent so near the earth itself in my hunt for *Saldoida*.

A new Dragonfly (Odonata) belonging to the Cordulinae, and a Revision of the Classification of the Subfamily.

By E. B. Williamson.

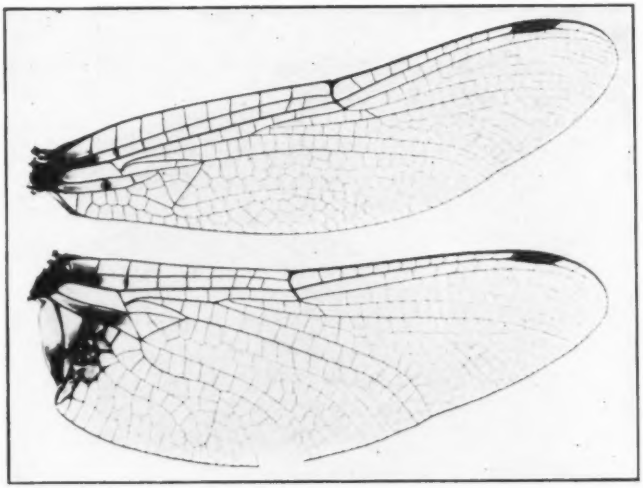
(Plate XVIII.)

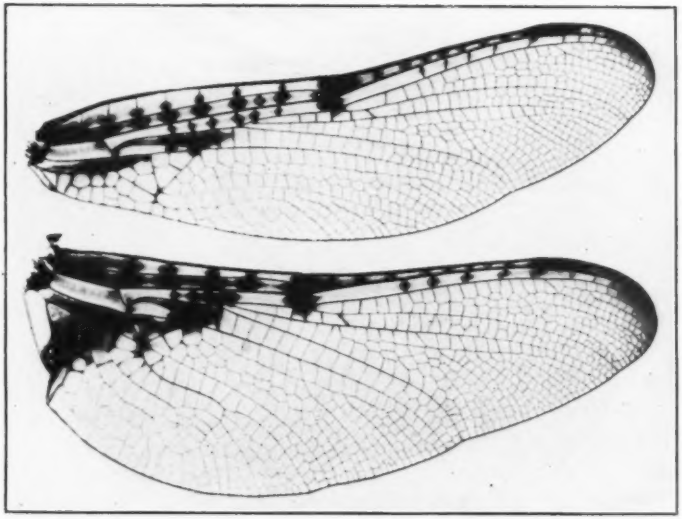
In the past, two groups of Cordulinae have been recognized and defined by the following characters: crossed or free supertriangles, and united (stalked) or distinct (separate) sectors of the arculus. These groups and the sub-groups are familiar to students of Odonata and need not be discussed here, except to call attention to the fact that the classification resulting from the use of these characters has been an altogether artificial one, resulting in an unnatural assemblage of genera.

The sub-family Synthemiinae, proposed by Needham and Hart* but not defined, by inference includes the second legion or group defined by de Selys and later authors, but only the Illinois genera of this legion are mentioned. Later Needham†

* Bull. Ill. St. Lab. Nat. Hist. Vol. VI, Sept., 1901, p. 5.

† Aquatic Insects in the Adirondacks, N. Y. St. Mus. Bull. 47, Sept., 1901, p. 479.





WILLIAMSON ON ODONATA.

Above, *Neurocordulia yamaskanensis* ♂. Ottawa, Canada.
Below, *Platycordulia xanthosoma* ♂. Wister, Oklahoma. From type.

defined Macromiinae (= Synthemiinae*) but only the faunal genera, two in number, are considered and the contents of the sub-family are not indicated. The genera segregated by his first character, *the triangle of the hind wing placed considerably beyond the arculus,* are not identical with the genera segregated by his second character, *the anal loop well developed and hardly longer than broad.* The third character, *with more than 2 cubito-anal cross-veins,* like the characters on which the two groups of de Selys were founded, is not a character upon which major groups can be based. In *A Genealogic Study of Dragonfly Wing Venation,* 1903, Needham indicates *Synthemis* as belonging to the Macromiinae.

Omitting for the present the three Corduline genera with 4-sided triangles in the front wings, on venational characters five groups of Cordulinae of approximately co-ordinate rank, I believe, may be defined. The contents of these groups are as follows†:

I. *Hemicordulia, Procordulia, Somatochlora, Paracordulia, Dorocordulia, Cordulia, Helocordulia, Tetragoneuria, Epicordulia* and *Epitheca;* represented in the Oriental, Australian, Ethiopian, Palaearctic, Nearctic and Neotropical regions.

II. *Neurocordulia, Aeschnosoma* and *Libellulosoma;* represented in the Nearctic, Neotropical and Ethiopian regions.

III. *Oxygastra, Syncordulia, Neocordulia* and probably *Gomphomacromia;* represented in the Australian, Palaearctic and Neotropical regions.

IV. *Nesocordulia, Idomacromia, Idionyx* and probably *Macromidia;* represented in the Ethiopian and Oriental regions.

V. *Epophthalmia, Macromia, Azuma, Didymops, Phyllomacromia* and *Synthemis;* represented in the Oriental, Australian, Ethiopian, Palaearctic and Nearctic regions.

Some of the characters upon which this grouping is based are as follows:

1. M_4 and Cu_1 in front wing convergent. Group I.
   M_4 and Cu_1 in front wing parallel. Group III excepting *Gomphomacromia.*
   M_4 and Cu_1 in front wing slightly divergent. Groups II and IV and *Gomphomacromia.*

* See Proc. U. S. Nat. Mus., vol. xxvii, page 698, foot-note *a.*

† No attempt at an orderly arrangement of the genera within each group has been made.

M_4 and Cu_1 in front wing widely divergent, Cu_1 strongly curved. Group V.

2. M_3 and M_4 in front wing distinctly divergent. Group III.
   M_3 and M_4 in front wing convergent or only slightly divergent. Groups I, II, IV and V.
3. Anal loop long, apex widened. Groups I and II.
   Anal loop long, apex rounded, not widened. Groups III and IV (obscured in *Gomphomacromia* and *Macromidia*).
   Anal loop rounded. Group V.
4. Proximal angle of the subtriangle in front wing proximal to, on level of, or only slightly beyond arculus. Groups I, II and III.
   Proximal angle of the subtriangle in front wing distal to the level of the arculus by at least the length of the anterior side of the subtriangle. Groups IV and V. (In Group IV the postanal cell* forms more of the posterior side of the subtriangle than the cell just proximal to the postanal cell: in Group V, excepting in *Phyllomacromia* where they are about equal, the postanal cell is much the shorter).
5. In front wing the postanal cell* divided (2-celled). Groups I and II.
   In front wing the postanal cell* undivided. Groups III, IV and V.
6. Proximal side of triangle in hind wing on level of or proximal to arculus. Groups I and II.
   Proximal side of triangle in hind wing distal to arculus by less than length of arculus. Group III.
   Proximal side of triangle in hind wing distal to arculus by at least the length of arculus. Groups IV and V.

The consideration of these characters and the resulting groupings makes it impossible to reduce the sub-family to a smaller number of co-ordinate sub-groups than five. The stalking or distinct origin of M_{1-3} and M_4 at the arculus has not been used because of its indefinite character in many cases. The origin is generally distinct in Group I and in *Neurocordulia* and *Oxygastra* and stalked in all others reaching the extreme development in *Phyllomacromia, Didymops* and *Idionyx*. Other characters not here mentioned are available for defining groups or genera. For example, Group III has 3-5 cross-veins between M_{1-3} and M_4 in front wing and 2 in

* Postanal cell—a small distinct area in the front wing posterior to the subtriangle, homologous with the anal loop of the hind wing in the Cordulinae.

hind wing; Group IV has 8-12 cross-veins in front wing and 4-5 in hind wing.

Of the three genera with 4-sided triangles in the front wing, *Cordulephya* is remarkable by the great divergence of M_3 and M_4, and the convergence of M_4 and Cu_1 in the front wing, and the reduction of wing area. It suggests *Syncordulia*. *Neophya* is its exact opposite in all these characters and suggests *Idionyx*. *Pentathemis* has as little in common with the other two as they have with each other, the 4-sided triangle of the front wing resulting from an entirely different switching of veins. It is related to *Aeschnosoma* and perhaps should be placed in the same group.

PLATYCORDULIA new genus.*

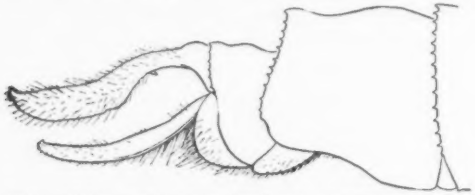
Related to *Neurocordulia, Aeschnosoma and Libellulosoma.* Distinguished at once from all by the apically broadened and rounded anal loop which is widely separated from the wing margin by 2 rows of cells (one row in all the others). Of the four genera it has the densest reticulation. The two genera *Aeschnosoma* and *Libellulosoma* are closely related to each other and are distinguished from the other two, among other characters, by the strongly waved M_3 and M_4 in both front and hind wings and the unsymmetrical and peculiar forking of M_1 and M_2 in both front and hind wings. Two species of *Neurocordulia* are known. The venational difference between them is slight, consisting of a greater number of antenodals in both front and hind wings in *yamaskanensis* as compared with *obsoleta* and scarcely definable differences in the form of the anal loop (differences in the form of the two distal angles and the direction of the distal side with reference to the long axis of the wing). Some of the venational differences between the two species of *Neurocordulia* and *Platycordulia xanthosoma* n. sp. are discussed below. The denser reticulation of *Platycordulia* is a striking character, recognized at once by the increased number of rows of cells between the sectors at a relatively proximal position in the wing. Type of *Platycordulia*: *P. xanthosoma*, n. sp.

* The name refers to the broadened anal loop in the hind wing.

Platycordulia xanthosoma n. sp.

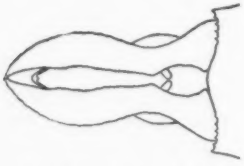
Length of abdomen, including appendages, 38 mm.; hind wing, 36 mm.; hind femur, 9 mm.

Entire insect yellow or yellowish. Abdomen, excepting segment 1, basal half of 2 and all of 10, darker than thorax; 5-8 or 9 each with a

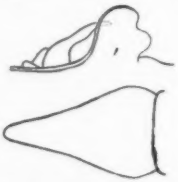


Platycordulia xanthosoma ♂—Profile view of segments 9 and 10.

lateral basal paler spot. Head rounded, eyes contiguous for a distance about equal to the width of the vesicle. Wing membrane pale yellowish with clear yellow markings as shown in the figure of the wings (the photographic process produced in the figure a greater contrast



Dorsal view of appendages.



Profile view of accesory genitalia of abdominal segment 2, above. Ventral view of inferior appendage, below.

in the color of the membrane in general and the yellow markings than appears to the eye.) Membranule white, posterior third dark brown, this brown color in the hind wing extending across the anal triangle and broadly margining cross-veins in the immediate wing area, not extending into the anal loop.

Some venational characters may be briefly compared with the two species of *Neurocordulia.* Certain characters of 10 males and 7 females of *N. yamaskanensis* were kindly furnished me by Prof. E. M. Walker. The supertriangle of front wing is free in 20 wings ♂ and 12 wings ♀ *yamaskanensis,* and 1 wing ♂ and 4 wings ♀ *N. obsoleta;* crossed in 2 wings ♂ and 4 wings ♀ *yamaskanensis,* 1 wing ♂ and 1 wing ♀ *obsoleta* and 4 wings ♂ of *P. xanthosoma.* Supertriangle of hind wing free in 22 wings ♂ and 16 wings ♀ *yamaskanensis,* 2 wings ♂ and

4 wings ♀ *obsoleta*, and 4 wings ♂ *xanthosoma;* crossed in 1 wing ♀ *obsoleta*. Two cubito-anal cross-veins in front wing in 21 wings ♂ and 16 wings ♀ *yamaskanensis*, 2 wings ♂ and 5 wings ♀ *obsoleta;* 3 cross-veins in 1 wing ♂ *yamaskanensis* and 3 wings ♂ *xanthosoma;* 4 cross-veins in 1 wing ♂ *xanthosoma*. One cubito-anal cross-vein in hind wing in 1 wing ♂ *yamaskanensis;* 2 cross-veins in 21 wings ♂ and 16 wings ♀ *yamaskanensis*, and 2 wings ♂ and 5 wings ♀ *obsoleta;* 3 cross-veins in 4 wings ♂ *xanthosoma*. In 2 males *yamaskanensis* and 1 ♂ *obsoleta* the anal triangle is 2-celled, in 2 ♂ *xanthosoma* 3-celled. Antenodals in front wing—*yamaskanensis* 9-11, *obsoleta* 7-8, *xanthosoma* 7-8; postnodals in front wing—*yamaskanensis* 6-9, *obsoleta* 7-10, *xanthosoma* 7-8; antenodals in hind wing—*yamaskanensis* 6, *obsoleta* 5 (rarely 6), *xanthosoma* 5; postnodals in hind wing—*yamaskanensis* 7-10, *obsoleta* 8-10, *xanthosoma* 7-8. Rows of cells after triangle in front wing—*yamaskanensis* 2, *obsoleta* and *xanthosoma* 2 or 3: in hind wing—*yamaskanensis* 2 or 3, *obsoleta* 2, and *xanthosoma* 2-4 indefinite. Material studied by me—*yamaskanensis* 2 ♂, 1 ♀; *obsoleta* 1 ♂, 2 ♀ and wings figured by Martin p. 38, *Cordulines, Coll. Zool. Selys Longchamps;* and *xanthosoma* 2 ♂.

The abdominal appendages of *Platycordulia xanthosoma* are figured. They are separated at once from species of *Neurocordulia* by the inferior tooth of the superior appendages.

The two males of *P. xanthosoma* in my collection were taken at Wister, Oklahoma, one of them on June 4, 1907, by myself, the second on August 2, 1907, by Frank Collins, a boy who did some collecting for me. Wister is situated in the northeast part of the Choctaw Nation, a few miles south of parallel 35 deg. N., near the Poteau River, a southern affluent of the Arkansas. About a mile north of the town is a lake lying on the west side of the railroad. I was informed that this lake is artificial, caused by the fill for the railroad grade. At the present time the lake has a surprising Odonate fauna. To mention two cases, *Libellula cyanea* and *Ischnura kellicotti*, hitherto not known west of Indiana, were here in

abundance. The gap in the known distribution of these two species is thus over 500 miles. The overflow from the lake is a small stream averaging when I saw it 2 or 3 feet in width. Its length from the lake to its mouth in the Poteau River is possibly half a mile. A short distance below the lake, in passing some bushes which overhung the stream bed, I disturbed the only specimen I saw alive of *P. xanthosoma*. This flew a short distance along the stream and alighted in a well concealed spot in bushes overhanging the water. Its flight, manner of alighting and position at rest suggested a teneral *Libellula*. The specimen taken by Frank Collins is somewhat worn; he wrote on the envelope "Yellow one." His home in 1907 was a camp along the Poteau River and his collecting was done along the river, at the lake and at intermediate points.

Professor Walker has recorded the interesting fact that *N. yamaskanensis* is entirely crepuscular in its habits, spending only a brief period of the day on the wing. It is not improbable that *N. obsoleta* and *P. xanthosoma* similarly are abroad only in the evening.

Ceratophyllus niger n. sp. (Siphonaptera).

By Carrol Fox, P. A. Surgeon, P. H. and M. H. S., San Francisco.

Female.—Head gently rounded to frontal notch which is distinct. Three stout bristles in lower genal row; three more slender in upper row. Genae acutely pointed posteriorly. Eyes oval. About nine hairs on second antennal joint, longer than third joint. One large bristle on disc of vertex behind middle of antennal groove. The usual bristles on hind margin of head and one large one at lower angle. Numerous minute hairs along posterior margin of antennal groove. Labial palpi five jointed and extend almost to end of anterior coxae. Maxillae triangular.

Thoracic nota with two transverse rows of bristles; the principal with about eight bristles. Ctenidium on prothorax of about twenty-six spines. Second, third and fourth abdominal tergites with two stout teeth, fifth with one tooth on each side. Two rows of bristles on abdominal tergites, the posterior row consisting of about twelve bristles; the anterior row fewer in numbers and smaller, and irregularly disposed. Abdominal sternites with one row of about eight bristles. A few smaller along median line on ventral surface. Style slender with

long apical spine and proximad to this one smaller on upper and one on under surface. Sub stylar flat with about seven bristles on margins. Three antipygidial bristles on each side, the middle one in each group the longest. Below pygidium on each side are two bristles.

No minute teeth on inner side of hind coxae. Six hairs on lateral aspect of hind femur. Five spines all in line on each side of fifth tarsal joint. Arrangement of spines on fore tibia as usual in *Ceratophyllus*. Apical spines on second tarsal joint not longer than third joint. Length of joints of hind tarsi: 20-15-10-5-10.

Color, very dark brown. Length, 3.5 mm.

Male.—Head more abruptly rounded. Two small bristles above upper genal row along anterior margin of antennal groove. About six minute hairs above eye. Third abdominal segment with one tooth, fourth and fifth with two teeth on each side. One antipygidial bristle on each side. Lateral portion of ninth tergite expanded into a rather broad lobe, with a somewhat flattened top, and springing from this top is a long bristle. Two long bristles arise just above the insertion of claspers. Upper claspers large with a stout pedicle, and with the pedicle might be described very well as gourd-shaped. On the upper rounded posterior angle and extending on to the posterior surface are five slender bristles. The anterior surface of claspers contains a large shallow notch and along the margin of this notch are four minute hairs.

The ventral style is long, becoming more narrow toward the tip which contains four long bristles. Length, 2.5 mm.

Six specimens—three females and two males from Man: one male from *Mus decumanus*.

In the October issue of the Entomological News, on page 385, I find myself charged by one signing himself "H. S." with a serious, but obviously foolish, thing—that of putting my name to a piece of work (Kansas Station Bulletin, No. 154) with the preparation of which I had nothing to do. I beg to call the attention of "H. S." to the fact that his quotation of the footnote, occurring on page 165 of that bulletin, upon which he bases his charge of suicidal misconduct, is an *incorrect* quotation. "H. S." quotes as follows: "The work on this bulletin as printed was independently planned and executed by Mr. Dean, who also made the photographs for illustrations." The *original* footnote reads: "The work upon which this bulletin is founded was independently planned and executed by Mr. Dean, who also made the photographs for illustrations." The "H. S." version is a misstatement of facts. The data were collected by Mr. Dean and partly published by him in 1903 (see pages 164-170, "Transactions of the Kansas Academy of Science"). Kansas Station, Bulletin No. 154 was planned and written by me. In my desire to give Mr. Dean full credit for his work, I inserted the footnote which "H. S." has misquoted and used as a basis for his most unjust accusation.—T. J. Headlee.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., NOVEMBER, 1908.

The following letter has been received:

"A strange animal has made its appearance in the ——— Department of the City Hall. The head of the Bureau thinks a large spider has changed by metamorphosis into a large green moth. I know this to be impossible, but I am anxious that an expert shall investigate the matter, as I am no authority on such subjects. The moth is undoubtedly a very strange one, and is entirely unfamiliar to me.

"If you can call and look at it, I think you will be interested."

There are so many things to know these days that considerable discrimination should be used in making a selection for school children. They are probably taught some things less useful than an elementary knowledge of Entomology and other branches of natural history. There may be some excuse for the grown people of to-day who know nothing about the transformations of insects, but the children of the present time should be better taught. The large spider mentioned in the letter was *Argiope riparia* and the moth *Pholus pandorus*.

TRIGONALYS AND ROPRONIA IN VIRGINIA.—Three species of Trigonalidæ I have taken near Falls Church, Va. *Lycogaster pullata* at Glencarlyn, Va., 4 May, and Falls Church, 29 May, *Lycogaster costalis* at Great Falls, Va., 25 June, and 31 July. *Trigonalys pulchellus*, Great Falls, Va., 12 and 25 June. Schulz in the Trigonalidæ of the Genera Insectorum puts *costalis* as a synonym of *pulchellus*. This is entirely wrong; both were described from males, and *costalis* has the male ventral structure as in *Lycogaster*, just as originally stated by Cresson.

Last winter I left a peculiar Hymenopteron with Mr. Crawford, together with some bees. Later he identified it as *Ropronia*, probably *R. garmani*. This season I have taken two *R. garmani*, Falls Church, 7 June, and Great Falls, Va., 25 June; and one *R. ashmeadi* at Falls Church, 5 July.—NATHAN BANKS.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

UNTIL further notice, Dr. P. P. Calvert will be unable to undertake the identification of Odonata. Correspondents will please not send him specimens for this purpose.

THE annual flight southward of *Anosia plexippus* began on October 2d, continuing for several days, during which many stores in the business district were invaded by these interesting creatures. Their number, however, was probably a trifle short of what it has been on former occasions. A fine albino specimen of *A. plexippus* was taken by the writer during the flight. *Catopsilia eubule* also seemed less in evidence than formerly. *Ulolodes hyalina* was taken here last July at a light. *Calopteryx maculata* was quite abundant. Not a few collectors took *Stiria rugifrons*. *Pamphila leonardus*, both male and female, are among this season's catch. A somewhat worn specimen of *Pamphila delaware* was also captured on the Missouri side of the "Father of Waters," but continuous diligent search failed to reveal another. Collecting Lepidoptera here this summer and fall was somewhat of a disappointment, as there seemed to be a dearth of everything, except *Debis portlandia* and *Nathalis iole*. The latter fairly swarmed, especially about sandy railroad beds, for the vicinity of which it seems to entertain a particular fondness. This little insect, similarly plentiful in 1904, seemed to have disappeared from here entirely during the following years, only to reappear this season in uncountable numbers. So far as known, no *Terias mexicana* was seen here this season.—AUGUST KNETZGER, St. Louis, Mo., Oct. 12, 1908.

A REMARKABLE OUTBREAK OF TIPULA LARVAE.—Early in February, 1908, a number of *Tipula* larvae were sent in to our laboratory from Mariposa County, California. The letter accompanying them said that they were occurring in immense numbers and devastating the grass lands and wheat fields. The following from a letter from Dr. H. B. Stanley, of Hornitos will show something of their abundance: "At the present time in all pasture lands you cannot overturn a stone, rock, or bunch of cow manure anywhere without finding from five to fifty under each. A few days since, at sundown, I sprinkled a square rod of land with a solution of cyanide of potassium, a grain to the ounce. Next morning I went to the place and found the ground literally covered with larvae. You could not put down the point of a pin anywhere without touching one; I counted twenty-eight on one square inch. This was on a hillside where three weeks ago the ground was

covered with green thrifty grass, but now the whole hillside is bare as a pavement."

Other reports show that the insect is occurring in destructive numbers in several other counties throughout the interior valleys of the State "where great tracts of pasture land have been rendered worthless, resembling land after a prairie fire has swept over it."

The larvae sent to us seemed identical with the larvae of *Tipula simplex* Doane, and adults issuing a few days since shows this identification to be correct. Mr. W. F. Derby, an assistant in the Entomology laboratories here, very carefully worked out the life history of this and other species here last year and has his results ready for publication, and Prof. H. J. Quayle, of University of California, is investigating the extent and seriousness of the outbreak, so I will not dwell on these points. I only wish to call attention to the remarkable fact that in this species which has so suddenly leaped into prominence the female is practically wingless, the wings being reduced to mere vestiges and serving in no way as organs of locomotion. In Ento. News, Vol. 18, No. 1, I described the female and gave some notes on their abundance at Stanford.

Although practically all the members of this genus have rather large, well developed wings, none of them are strong flyers, many of them indeed using their wings quite awkwardly and flying only short distances. Nevertheless, these wings are much better than nothing when it comes to the species distributing itself. The female of *T. simplex* can only move about by crawling slowly and laboriously over the grass. From observations made here they rarely travel more than a few feet before they deposit their eggs in the ground, after which they soon die. Occasionally some of the females or the larvae or pupae are washed away in the little temporary streams that drain these lands during or after a hard rain and this doubtless helps some in distributing the species.

However, this wingless condition may have come about, whether by natural selection, heterogenesis or what not, the fact that this species is so widely and abundantly distributed over the State when we would naturally expect it to occur in limited numbers and restricted areas shows that the adaptation is an extremely successful one. It is interesting to note in this connection that in another species of this same genus, *Tipula vestigipennis* Doane MS. both the male and female are practically wingless, yet the species is very abundant in certain localities, but has only been reported from San Francisco and nearby regions.

I find records of two other outbreaks of Tipulid larvae in California, but in neither instance was the species identified.—R. W. Doane, Stanford University, Cal.

About Grasshoppers.—A Menace to Crops When They Appear in Great Numbers.—The boys who walk through the fields and see a few grasshoppers jumping about little think perhaps that creatures apparently so harmless actually eat people out of house and home sometimes in the West. They come in great droves and multiply into greater droves and then overrun the country and eat the crops.

They were so bad in a certain county of Utah a few years ago that they defied all the efforts of the farmers to get rid of them, and the result was that all the crops were destroyed. The following year the farmers adopted a novel means of fighting the pests. They arranged a series of entertainments to be given in the several towns of the county, admission to which might be had on presentation at the door of a half bushel of grasshoppers as a "ticket"—dead grasshoppers, of course.

The notion caught and spread like a prairie fire, and at the first entertainment 150 people appeared, each with a half bushel of the pests. That county saved its crops.—*Newspaper.*

Doings of Societies.

The Brooklyn Entomological Society met June 4th at 55 Stuyvesant Ave., Brooklyn, with 21 members and 9 visitors present, including Prof. Silvestri, the eminent Italian entomologist and Prof. Wm. Morton Wheeler, of Harvard University. Dr. J. J. Schoonhoven, president of the Brooklyn Institute, department of Microscopy, was elected an active member.

Prof. John B. Smith exhibited enlarged microphotographs of genitalia of the European *Hydroecia nictitans* taken by F. N. Pierce of England. The latter scholar has divided the species into four, largely on constant characters of genitalia. In his revision of the American *nictitans* a few years ago Prof. Smith split the species in three, much on the same grounds.

Prof. Smith spoke on observations on *cecropia* cocoons. Of these 1052 had been collected for data, the sound ones being for the most part purposely rejected. Of one lot 9 were healthy, 42 parasitized and 233 dead of disease. In a second lot 152 were parasitized and 305 died before pupation. The parasites were *Ophion* and two species of *Pimpla.*

The inference was that in the campaign against insect pests most important results might be obtained through study of disease inoculation. Two species of bacterial disease were

present in the tested *cecropia*. In June a host of secondary parasites emerged. John A. Grossbeck actually counted 30,000 and estimated the remainder at 20,000. This averaged over 200 parasites per cocoon.

Our observers had little information on the life history of secondary parasites. In one instance the life from egg to imago emergence was ten days. Prof. Silvestri explained that the hyperparasite attacks its host only when full grown in the larval state.

At the conclusion of the meeting the society and visitors were entertained at supper by George Franck.

R. P. Dow, *Recording Secretary.*

ENTOMOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

Meeting November 21, 1907.—Dr. D. M. Castle in the chair. Six persons present. Dr. Skinner exhibited specimens of *Argynnis astarte* and spoke of the habits and distribution of the species.

HENRY SKINNER, *Recorder.*

Meeting December 26, 1907.—Dr. P. P. Calvert in the chair. Eleven persons present. Dr. Skinner exhibited *Halter americana*, a fossil insect described by Prof. T. D. A. Cockerell. Mr. E. Daecke made some remarks on the predaceous habits of Asiliidae and said he had observed *Proctacanthus philadelphicus* catching species of *Bombus*. He exhibited specimens of *Somatochlora tenebrosa* taken in coitu at Bambur, New Jersey. Dr. Calvert referred to the large appendages of the male in this species. He also spoke of the general belief in the richness of tropical countries in insect life, but said the Odonata are not a striking example of this richness. Of all the Mexican States, Vera Cruz is the one which has been most thoroughly examined in regard to its Odonata. It extends from 17° to 22°+ north Latitude and from sea level to 18,000 ft. elevation, has an area of 29,200 square miles and 118 known species and races of Odonata. The State of New Jersey ex-

tends from 39 to 41 degrees north latitude and upward to but 1800 ft. with an area of 7800 square miles, and has 108 species. Nine species are common to the States of Vera Cruz and New Jersey. They are *Hetaerina americana, Argia translata, Ischnura ramburi, Anomalagrion hastatum, Anax junius, A. longipes, Libellula auripennis, Pantala flavescens, Sympetrum corruptum.* Mr. Daecke said 34 species of *Chrysops* had been recorded from New Jersey and only 22 species from Africa. The following officers were elected for the year 1908:

Director, Philip Laurent.
Vice-Director, H. W. Wenzel.
Treasurer, E. T. Cresson.
Conservator, Henry Skinner.
Secretary, J. H. Ridings.
Recorder, Henry Skinner.

HENRY SKINNER, *Recorder.*

Meeting January 23, 1908.—Dr. D. M. Castle presiding. Ten persons were present. Dr. Skinner exhibited a geometrid moth that was captured at the Falls of Schuylkill by the Rev. I. F. Stidham. It was a *Plagodis* probably new to science. Mr. J. A. G. Rehn exhibited a large roach, *Blaberus atropos* Stoll, taken at Key West, Florida. This species is common in Cuba and widely distributed through Central and South America, this record however being the first from the United States. Its occurrence is probably due to accidental importation from Cuba. Mr. Rehn also exhibited specimens of the Acridid genus *Proctolabus,* which for over forty years had remained a monotypic genus but which is now known to contain three species in addition to the type, all of which were exhibited. The type species, *P. mexicana* came originally from Toluca, Mexico, the new forms being from Jalisco, Mexico, Costa Rica and the eastern slope of the Peruvian Andes. The speaker then exhibited specimens of three genera of Acrididae possessing somewhat similar development of the median carina of the pronotum, although from widely separated localities and belonging to two distinct sub-families. The genera shown were

Tropidolophus from the Great Plains and semi-arid country of the West, *Pyrgodera* from Central Asia and a new genus from Central Brazil. Dr Calvert exhibited paraffine sections of prawns which had been injured by book-lice (*Atropos*). He placed naphthaline in the box and found it was fully effective in killing the book-lice. Dermestids also attack these sections. Mr. Bradley exhibited stereoscopic pictures, photographs of Oryssidae and various genera and species. Some of the pictures were of anatomical details of these insects. A method of making stereoscopic pictures with an ordinary monocular lens was explained. This is done by using a diaphragm perforated on one side and then reversing it. He also showed moth parts (slides) of Siricidae. The mouth parts of *Parurus* and *Tremex columba* were described. The sub-family relations of *Tremex, Teredon, Xerias, Sirex* and *Parurus* were given.

HENRY SKINNER, *Recorder.*

Meeting of March 26, 1908.—Philip Laurent, Director presiding. Nine persons were present. Prof. Calvert compared the Odonata found in the West Indies with those in Mexico and Central America, stating that the species common to the two areas include a number of weak-flying, and also strong-flying species. Although the prevailing wind blows from the West Indies toward the continent, there are a number of strong-flying dragonflies found in the West Indies, and not in Mexico and Central America. Mr. Rehn mentioned the occurrence of a species of walking-stick of the West Indian genus *Aploplus*, on Swan Island which is nearer to the coast of Honduras than to any island of the West Indies. Dr. Skinner said that the geographical distribution of some species appeared inexplicable and cited a number of interesting cases.

Mr. Philip Laurent, referring to Circular No. 97 issued by the U. S. Department of Agriculture, entitled the Bag-worm, stated that it seemed strange that the willow, one of the commonest food plants of *Thyridopteryx ephemeraeformis* was not mentioned in the list of food plants. Mr. Laurent stated that next to arbor-vitae, the commonest food plant of the larva of

the species in question was the various species of willow, at least as far as the vicinity of Philadelphia is concerned.

FRANK HAIMBACH, *Secretary pro tem.*

Meeting of May 28, 1908.—Dr. Philip P. Calvert in the chair. Seven members and two visitors present. Mr. Daecke spoke of a collecting trip to Browns Mills, New Jersey, on May 27th. He reported the following species: *Pamphila hianna* Scudder. Other than this and his Iona records there is no other actual record for the State. The difficulty of capturing *Poaphila quadrifilaris* was mentioned. The other records in the New Jersey list for this moth are all Newark. *Euherrichia granitosa* Guen., one specimen from the same locality captured a year ago was the first record for the State. *Orthofidonia vestaliata* Gn. Two records, one from northern Jersey and one from Ocean County. *Crambus daeckellus* Haimbach, recently described. *Chrysops indus,* a new locality for this insect. *Tetyra bipunctata* a rare Hemipterous insect. A female *Hemaris gracilis* was observed ovipositing on huckleberry. A living ant-lion (larva) was exhibited. The species unknown. It was described as follows; Head, thorax and first two abdominal segments, brick-red; next segments with a heavy black crossband, the remainder of abdomen grayish-white with a longitudinal row of black spots.

Dr. Calvert spoke of the genus *Somatochlora* and the species *tenebrosa* and *filosa* as having been recorded from North Carolina by Brimley. Mr. Brimley had sent him specimens and also a cast skin of *tenebrosa.* Mr. Brimley's determinations of the species were found in accord with his own.

Mr. Daecke said *Tabanus mexicanus* flew around cattle toward night. He said the fact that *Diachlora ferrugatus* and *Dorcas brevis* had been found at Weymouth, New Jersey, made the locality an interesting one.

HENRY SKINNER, *Recorder.*

Meeting of September 24, 1908.—Vice-Director, H. W. Wenzel, presiding. Eleven persons present. Mr. Rehn exhibited a wingless katydid, *Cyphoderris monstrosus,* collected

by Prof. Stewardson Brown, on the Saskatchewan river, Alberta, Canada. It has also been found in Montana. He also exhibited *Hesperotettix brevipennis* described by Uhler. In 1891 Prof. Morse took one at Wellesley, Massachusetts, and at subsequent dates during four or five years, he took quite a number. The speaker captured nine specimens at Stafford's Forge, Ocean County, New Jersey, during August and early September. The species was taken in a very limited area.

Dr. Skinner exhibited *Pieris napi acadica* Edw. from Newfoundland, new to the collection and presented by Dr. William Barnes.

Mr. Haimbach spoke of the great abundance of a noctuid moth, *Galgula hepara* throughout the city at the present time. He had never seen it in such numbers previously.

Dr. Calvert exhibited a specimen of the moth *Erebus odoratus* Linn. which had been found in the second story of Biological Hall, University of Pennsylvania, Philadelphia, Aug. 27, 1908, during a storm which is said to have come from the Gulf of Mexico; an immature male of *Libellula incesta* Hag. from Clementon, N. J., June 4, 1908, interesting for possessing a pale fuscous streak in the first post-nodal space of the wings suggesting *L. axillena* Westw.; a male of *L. axillena,* type form, from the same place and date, the first record from New Jersey; *Argia translata* Hagen from Chester Creek, Glen Riddle, Delaware County, Pennsylvania, July 16, 1908, and Lake Hopatcong, New Jersey, July, 1906, this last by Mr. S. N. Rhoads; *Lestes disjunctus* Selys, Tobyhanna, Monroe County, Pennsylvania, September 18th, 1906, by Mr. Bayard Long, first record for Pennsylvania; *Gomphus spiniceps* Walsh, Fairmount Park, Philadelphia, June 27th, 1906, Chester Creek at Glen Riddle, Pennsylvania, July 16th, 1908, with their exuviae, by Mrs. Calvert, and Crum Creek above Strathaven, Pennsylvania, July 28th, 1908; this *Gomphus* is an addition to the Odonate fauna of Eastern Pennsylvania; many more of its exuviae were found than imagos seen.

Mr. Chas J. Cole, Jr., was elected an Associate.

HENRY SKINNER, *Recorder.*

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